

DAY 1 The volcanoes of La Garrotxa Volcanic Zone Natural Park

Activity

The whole activity will be carried out in La Garrotxa Volcanic Zone Natural Park. The first visit is to the volcano of Croscat, the youngest volcano in the Iberian Peninsula and, thanks to a now-disused quarry that has exposed its innards, an excellent place in which to study volcanic eruptions and materials. The second visit is to La Fageda d'en Jordà, an exceptional beech forest located on the lava flow produced by Croscat. In this forest we will study the ecosystem and the lava flow. The third visit is to the village of Castellfollit de la Roca situated on top of a basalt crag, almost 1-km long and approximately 50-m high. From this beautiful viewpoint we can look out over the Fluvià valley and study the different structures of the lava flow.

Main goal

Learn how a volcano is formed, identify different types of volcanic materials and work on aspects related with ecosystems.

Contents

Geological formation of a volcano and types of eruptive activity
Identification of different volcanic materials: pyroclasts and lava flows
The main environmental impacts in the area around Croscat
Management in La Garrotxa Volcanic Zone Natural Park
Interpretation of the geological history of Castellfollit de la Roca
The De'n Jordà beechwood as an ecosystem

Programme

09:00 Departure from Roses

10:00 Arrival in La Garrotxa Volcanic Zone Natural Park

Arrival at the car-park of Àrea de Santa Margarida, with toilets and a picnic spot.

Presentation of La Garrotxa Volcanic Zone Natural Park and the most significant aspects of its natural heritage; distribution to students of material in form of work dossier. This dossier includes a number of worksheets that students have to fill in during the day's activities (diagram of Croscat's volcanic cone, its different eruptive phases, a table showing the different types of volcanic material, structure of a forest, characteristics of a beechwood, types of lava flows, the geological history of the area,)

10:30 Visit to the volcano of Croscat

This itinerary visits the inside of Croscat. It begins at the Santa Margarida car-park and continues along itineraries that have been signposted by the Natural Park. We reach the information centre at Can Passavent, where there is a small interpretative display on the history of Croscat that we will discuss with students. Afterwards, we enter the volcano and talk about the environmental problems of the volcano that led to the creation of the Natural Park.

Subsequently, we enter into more general concepts of geology and vulcanology and reveal the particular history of Croscat and its eruption, the main type of volcanic materials in the area and other types of volcanic eruptions. This activity is very didactic given that all the materials we discuss can be seen and touched, whilst the view from inside the volcano is an excellent tool for learning about the colour and nature of the volcanic materials.

13:00 Lunch

We will have lunch at the Can Serra picnic area (Natural Park information centre), where there are toilets

14:00 Visit to the Jordà beech wood

This route will take us through the wonderful D'en Jordà beechwood, where we will discuss the main ecological characteristics that make this such a special site. We will study the wood in greater detail by measuring some of the trees and looking at its vertical structure. We will look at the morphology of the terrain: a lava flow emanating from Croscat crossed an area of marshes and gave rise to special relief features known as tussols. We also discuss some of the main species of flora and fauna found here.

15:30 Visit to Castellfollit de la Roca and its lava flows

We move on to the village of Castellfollit de la Roca and walk through the village to the viewpoint overlooking the river Fluvià. From here we continue along another of the Natural Park's signposted itineraries down to the base of the spectacular cliffs to study the different types of lava. Through a study of their morphology and distribution, we will be able to begin to understand the geological history of the area from the first volcanic episode right up to the present day.

17:00 End of visit

18:00 Arrival back in Roses

DAY 2 The sea and the coast in the Bay of Roses

Activity

The activity is developed around the town of Roses. The first part of the activity deals with aspects related with the interpretation of the landscape. From a high viewpoint we will look out over the whole of the bay of Roses and we will be able to see how it was created, how it has changed over the years and the elements that configure the landscape today. Use of maps and compasses. The second part of the activity will take place on the coast. We will study the ecosystems located on the rocks of the Cap de Creus Natural Park and the beaches of Roses and will work in small groups. Each will choose a piece of land to study, where we will take abiotic data and then sample the algae, plants and animals that live in the zone. From the study of the coastal ecosystems, we will be able to gauge the health of the Mediterranean coastline.

Main goal

Learn techniques of orientation on the ground and locate different elements of the landscape on a map. Also, the study and observation the main coastal ecosystems.

Contents

The different elements of the landscape
Techniques of orientation in the field: topographical maps and compasses
Transformation of a territory and the effects of man's activities on the landscape
The biotic communities on the coast and their adaptations
Structure and formation of beaches

Programme

10:00 Beginning of the activity.

Itinerary to viewpoint overlooking the bay and interpretation of the landscape. Here, we will provide an introduction to the Cap de Creus Natural Park and its main areas of interest, and distribute the work dossier. Our first task is map-reading via the study of topological maps. We explain how a compass works and practice orientation. Observing the landscape we will describe and locate the main relief features of the area, which we will mark in the maps in the work books. To end, we play a game based around orientation that consists of finding clues located on a map and the use of a compass.

13:30 Lunch

We return to Roses and have lunch in a restaurant

15:00 Itinerary along the coast and development of the activity

We move on to the sea to work on coastal ecosystems. We will take samples and analyse the chemical properties of seawater. Then, we will define a number of plots and in each one we will try to locate the distribution of the plants and animals that live in the wave-break zone. In this way, we study the ecological requirements of each group of species, and the quantity and of water and light that they require. We use cards to identify the species and write up our findings in the field work book. Finally, we head for the beach where we define a number of transects to observe the dynamics of the sea on this stretch of coast and how the vegetation is distributed with respect to the sea. All this data will enable us to interpret how the Bay of Roses was formed and its geological history.

18:00 End of activity

All the activities will be carried out on foot.

DAY 3 The Vall de Núria and the Pyrenees

Activity

An excursion to one of the most beautiful valleys in the Catalan Pyrenees. La Vall de Núria is surrounded by mountains of up to 2,800 m and is characterised by a sub-alpine landscapes with pastures and pine forests. The activity will attempt to interpret the landscape by studying geological features and the vegetation of the valley. We will study how the Pyrenees were created and how they configured the landscape. Likewise, we will also study the forest and create study areas to discover the animal species that live there, which will depend on the orientation of the slope, the height and the type of stratum. We will then look at the structure of mountain forests and the strategies that animals and plants use to survive in such difficult climatic conditions.

Main goal

To get to know the main geological features of the Pyrenees and study the forest ecosystem in a practical way.

Contents

Geological process of formation of the Pyrenees and types of rocks
The distribution of the vegetation and the main species of plant
The landscape of the Pyrenees and the impact of man
The scientific method and techniques of fieldwork
Data processing and interpretation of results

Programme

09:00 Departure from Roses
10:30 Arrival to Ribes de Freser: take rack-and-pinion railway to Núria
11:15 Beginning of the activity

Introduction to the Núria valley and its geographical situation in the eastern Pyrenees. First, we will discuss the geology of the area and the importance of natural systems in areas of high mountains, before handing out the field work book and explaining the day's activity.

The day's first activity is based around a study of the landscape and the geomorphology of the area, that is, the geological history of the Pyrenees and its evolution up to the present day. The climatic conditions and relief features have led to a specific type of vegetation that can be interpreted through the observation of the landscape. We look at the different stages of subalpine and alpine landscapes taking into account the presence or otherwise of forest cover. Finally, we look at the impact of human activity on the landscape, above all in terms of the exploitation of the area's forestry, stock-raising and tourism. All

the work will be done using topographical and geological maps, as well as old and modern photographs.

13:30 Lunch

14:30 Beginning of the second activity

The second activity is aimed at getting students to carry out a scientific study of a forest. We establish individual plots where each group of students will work on their own. Factors examined include altitude, orientation and gradient, and we also measure temperature, humidity and the pH and depth of the soil. Once the plots have been fully studied, we carry out a botanical inventory designed to discover the abundance and surface cover of each plant species. Next we look at the vertical structure of the forest and analyse a series of data concerning forest dynamics. Finally, we compare the findings of each work group in order to see which forest plant communities are present and the factors that differentiate one community from another.

16:45 Departure from Núria to Ribes de Freser

17:30 Departure from Ribes de Freser to Roses

19:00 Arrival back in Roses

DAY 4 A day out in Barcelona

Activity

We will spend a day in Barcelona discovering some of the sites that are part of the city's history, and which every year attract thousands of tourists to the city.

The visit will begin on the hill of Montjuïc, from where we will be able to admire the whole of the city and its setting. From here we will head for the city centre and begin a tour of some of the city's most fascinating Modernist buildings and sites, before ending up down by the port. Our visit will end with a wander around the medieval 'Barri Gòtic' and its surrounding narrow streets and passage-ways.

Main goal

Discover the city of Barcelona by getting to know some of its most famous sites and learning about their historical-cultural significance.

Contents

Investigation of some of the city's most interesting buildings.

A look at Modernist architecture and twentieth-century urban planning through visits to some of the city's most significant buildings.

Observation of the transformations that the city has undergone over the years.

Programme

8:00 Leave Roses

10:00 Montjuïc: aerial view of the city

From on high in front of the Palau Nacional, today the Museum of Catalan Art, we look out over the city of Barcelona lying at our feet. Using city maps, we identify and mark the places we are to visit and the other buildings and places of interest in the city that we will not have time to visit. On this basis we will then plan the rest of our stay in Barcelona.

10:45 Passeig de Gràcia: Eixample, Pedrera & Casa Batlló (Gaudí houses) ...

We walk down Passeig de Gràcia from the junction with Diagonal to the Gran Via, stopping on the way to look at the façades of some of the street's most famous buildings. We will analyse the structure of the street, with its unique lamp-posts and paving, trying to imagine what it would have been like at the beginning of the twentieth century. Once at the foot of the street, we will talk a little about the Eixample quarter and Cerdà's urban planning.

We will study the façades of La Pedrera and Casa Batlló, both work of the Modernist architect, Antoni Gaudí, and look at old photographs of Modernist Barcelona. We will discuss the Pla Cerdà by looking at a map of the original design of the Eixample quarter and compare it with the buildings we find today.

11:30 Plaça Catalunya and Rambles (Boqueria market)

From Passeig de Gràcia we head for Plaça Catalunya, the heart of the city of Barcelona, and then continue on down its most important avenue, Les Rambles. We will look at how Plaça Catalunya acts as the urban and social hub of the city, and how Les Rambles connects this large square to the sea. We will stroll down Les Rambles, talking about the most interesting sites on the way: the Canaletes drinking fountain, the flower and pet stalls and the Boqueria market, where by means of discovery questions we will reveal the sheer size and dynamism of this bustling market.

12:30 Pick-up by coach at the statue to Columbus at the bottom of Les Rambles.

We analyse the monument to Christopher Columbus and reveal the importance over the centuries of the Port of Barcelona. We will use texts on the city's history as a trading port and a brochure from the Barcelona Maritime Museum.

13:00 Lunch in the Ciutadella Park

This park represents one of the most popular leisure sites in Barcelona and is home to the Catalan parliament and some of the other most important political buildings in Catalonia. The history of the park goes back to 1714 and we will discover some of the most salient events in this long history through a discovery activity with questions aimed at stimulating the students' abilities to deduce information from a series of facts.

14:00 Coach to leave us in Plaça Sant Jaume to visit the Cathedral, City Hall, Medieval quarter,

The history of the city of Barcelona cannot be understood without references to the importance of the Counts of Barcelona during the Middle Ages. We will visit some of the most representative buildings of the period, including the Cathedral, the Royal Palace and the Chapel of Santa Agatha, as well as the seats of the Catalan government (the Generalitat) and the city council in the Plaça de Sant Jaume. Following a detailed map of the Gothic quarter of the city, we will discover bit by bit the many different buildings and side-streets from a number of different epochs – from the Roman period right up to the present day - that all form part of the Barri Gòtic (Gothic Quarter) today.

16:00 Leave for Roses

18:00 Arrive in Roses